

REVIEWER'S REPORT

Manuscript No.: IJAR-52942

Date: 23/07/2025

Title: SURGICAL MANAGEMENT OF EXTERNAL CERVICAL RESORPTION AND RADICULAR CYST OF AN ENDODONTICALLY TREATED TEETH

Recommendation:

Accept as it is

Accept after minor revision.....Yes.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality		•		
Clarity	•			
Significance	•			

Reviewer Name: Dr. Sireesha Kuruganti

Date: 23/07/2025

Reviewer's Comment for Publication.

(To be published with the manuscript in the journal)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This is a well-documented case report with clear images and a good explanation of the surgical procedure and follow-up. The discussion effectively justifies the treatment choices and highlights the advantages of MTA.

Detailed Reviewer's Report

Here's a detailed, in-depth review of the manuscript, with line numbers for specific references:

General Comments:

The manuscript, "SURGICAL MANAGEMENT OF EXTERNAL CERVICAL RESORPTION AND RADICULAR CYST OF AN ENDODONTICALLY TREATED TEETH," presents a relevant and interesting case report demonstrating the successful surgical management of complex dental pathologies. The use of CBCT for diagnosis and MTA as a restorative material aligns with current endodontic practices. The one-year follow-up shows promising results. However, several areas could be improved for clarity, scientific rigor, and adherence to standard manuscript guidelines.

Specific Comments and Suggested Revisions (with Line Numbers):

Title:

* Line 3: The title is clear and concise, accurately reflecting the content of the manuscript.

Background:

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* Lines 1-3: The background effectively introduces External Cervical Resorption (ECR) and its association with trauma or dental procedures. It also highlights the complexity when ECR is accompanied by periapical pathology like a radicular cyst, especially in previously endodontically treated teeth.

* Line 3: The sentence "Cone-beam computed tomography (CBCT) plays a crucial role in accurately diagnosing and delineating such lesions" is appropriate, but it could be slightly expanded to mention why CBCT is crucial (e.g., its 3D imaging capabilities providing better assessment than 2D radiographs).

Abstract:

* Lines 5-8: The abstract clearly states the patient's presentation, including cavitation and swelling in previously endodontically treated teeth. The diagnosis of Class 2Bd ECR in tooth 11 and a large periapical lesion/radicular cyst in tooth 12, confirmed by CBCT, is well-articulated.

* Lines 9-11: The description of the surgical intervention is comprehensive, detailing the application of trichloroacetic acid, curettage, enucleation, and restoration with MTA, along with bone grafting.

* Line 11: "Minor gingival recession was managed postoperatively with composite restoration" is a good detail to include, showing complete management of the case.

* Lines 12-13: The conclusion in the abstract is strong, emphasizing healthy periodontal conditions and complete radiographic healing at one-year follow-up. The statement that "meticulous surgical debridement combined with bioactive restorative materials like MTA can successfully manage complex cases" is a good summary of the findings.

* Lines 14-15: Keywords are appropriate and relevant for indexing.

INTRODUCTION:

* Lines 30-31: The statement that "When caries causes an apical infection in primary teeth, radicular cysts may form" and "The preferred course of treatment for primary teeth with pulpitis or pulpal necrosis is pulp therapy" seems to focus on primary teeth. While relevant to radicular cysts, the case report is about a 27-year-old male (permanent dentition). It would be beneficial to transition more smoothly to radicular cysts in permanent teeth or briefly explain their etiology in adults.

* Lines 32-33: "Sometimes, a side effect of pulp therapy is cyst formation. Grundy et al. claim that the pulp treatment drugs may cause necrotic and antigenic materials in the root canals, which would stimulate the periradicular area with antigens". This explanation is valuable, but again, needs to be tied more directly to the context of permanent teeth if it's not a primary tooth case.

* Line 34: "Treatment options for radicular cysts include decompression, marsupialization, and total enucleation, or both" is a good overview.

* Line 35: "If properly treated, these cysts hardly ever return" is a strong statement, though attributing it to reference 7, which is a case report, might be less impactful than citing a review article or larger study.

* Line 36: "This case report details a patient's therapy for a radicular cyst and external cervical resorption" serves as a good transition to the case report section.

CASE REPORT:

* Line 37: "On Clinical examination cavitation was observed extending from the cervical region of the crown to the subgingival area wrt 11 (Figure: 1A) and round to oval swelling which was located over labial mucosa of maxillary lateral incisor region (Figure: 1A)". This description is good, but "wrt" is informal and should be replaced with "with respect to" or "in relation to" throughout the manuscript.

* Line 38: "High sensitivity to vertical and horizontal percussion tests was reported, and palpation of the periapical region also revealed sensitivity wrt 12. Periodontal probing was performed, and deep cavitation was observed on the labial surface wrt 11. The patient gave a history of previous endodontic wrt both 11 and 12 (upper right central and lateral incisor)". This is a clear and detailed clinical presentation.

* Line 39: "A two-dimensional radiograph revealed that the root canals of the upper right central and lateral incisors were well obturated". This is an important piece of information, confirming previous treatment.

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* Line 40: "However, a radiolucent area was observed in the cervical region of the crown and extending into the coronal third of the root on the mesial aspect of the upper right central incisor". This clearly describes the ECR on the radiograph.

* Line 41: "Additionally, a substantial periapical radiolucency was noted at the apex of the upper right lateral incisor, indicating a significant periapical lesion (Figure 1: B)". This accurately describes the cystic lesion.

* Line 42: "A CBCT (Cranex 3Dx, Soredex, KaVo Imaging, PA, USA) with a small field of view (FOV) 40x40 mm and voxel size 0.125 mm was performed to assess an extent of the resorption (Figure 1:C)". Providing CBCT parameters is excellent for reproducibility.

* Line 43: "The diagnosis Class 2Bd external cervical resorption according to Patel et al. was diagnosed wrt 11 (upper right central incisor) and radicular cyst wrt 12 (upper right lateral incisor) was made". The diagnostic classification is important.

Figure 1:

* Lines 91-105: The caption for Figure 1 is very detailed and informative, providing a good description of each image (A, B, C) and the findings. The measurements for the lesion in CBCT are very helpful. Ensure consistent use of "wrt" or "with respect to".

MANAGEMENT:

* Line 109: "The Patient was offered a treatment plan consistent with the European Society of Endodontology recommendations for class 2Bd external resorption, which included reflecting a flap, removal of the resorptive tissue and then filling of the defect with Mineral trioxide aggregate (Maarc, india) wrt 11 and Enucleation of cyst wrt 12 followed by retrograde filling using Mineral trioxide aggregate (Maarc, india)". This clearly outlines the treatment plan and justifies the approach. Mentioning the specific brand "Maarc, India" is good for transparency.

* Line 110: "After explaining the procedure to the patient, written informed consent was obtained from the patient". This is essential for ethical considerations.

* Lines 111-112: "Under local anesthesia of 2% lidocaine with epinephrine (Xylodont 1:50000, Molteni Stomat, Kraków, Poland) Intrасulcular incision from tooth 11 to 12 with vertical incision mesial to 13 and distal to 21 was given, and a trapezoidal mucoperiosteal flap was raised to expose the resorptive defect wrt 11 and cyst wrt 12. (Figure 2: A, B)". This provides precise details of the surgical access.

Figure 2:

* Lines 113-114: The caption for Figure 2 adequately describes the "Steps in management of the external cervical resorption and radicular cyst."

* Line 115: "Granulomatous tissue was seen housing the resorptive defect". This is a good observation.

* Lines 116-118: "A small cotton pellet dipped in 90% trichloroacetic acid (TCA) was applied on the tissue with gentle pressure for 1 min. Care was taken to squeeze the excess TCA from the cotton pellet with a gauze before application to avoid contact with adjacent bone". This detailed description of TCA application is crucial for understanding the technique and safety precautions.

* Lines 119-120: "The necrotic tissue was scooped out with the help of a spoon excavator. This procedure of application of TCA and removal of necrotic tissue was carried out till a sound dentinal base was seen (Figure 2: C)". This explains the meticulous debridement process.

* Line 121: "The sharp edges of the resorptive defect were smoothed with straight hand bur under low speed followed by the resorptive area was cleaned with sterile saline". This highlights careful preparation of the defect.

* Line 122: "The cystic lesion was clearly seen wrt 12 as the buccal cortical bone had undergone resorption (Figure 2: B)". This confirms the extent of the cystic lesion.

* Lines 123-128: "Complete curettage, along with granulation tissue removal and enucleation of cystic lesion was done and it was sent for histopathological evaluation (Figure 2: D). This was followed by thorough irrigation with betadine and normal saline, After the Enucleation of the cyst, 3mm of the root was resected wrt 11 and 12 followed by 3mm of gutta-percha was removed from the apical third of the

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root and retrograde filling was done using Mineral trioxide aggregate (Maarc, india) (Figure 3:A) and the cervical resorptive defect wrt 11 was filled with Mineral trioxide aggregate (Maarc, india) (Figure 3: B) and the defective periapical area wrt 12 was packed with Bone graft (Figure 3: C)". This is a very comprehensive description of the surgical steps, including histopathological evaluation, irrigation, root resection, gutta-percha removal, retrograde filling with MTA, filling the cervical defect with MTA, and bone grafting.

Figure 3:

* Line 135: "Figure 3: Shows a steps of surgical intervention steps wrt 11 and 12." The caption accurately describes the figures.

* Line 136: "The flap was repositioned back and absorbable sutures were placed and post-operative radiograph was taken (Figure 3: D, E)". This completes the surgical procedure.

* Line 137-139: "One week after a surgery patient was recalled to evaluate the healing, slight amount of gingival recession was noted with respect to 11. It was corrected by placing 2 mm of pink color composite (Shofu Beautifil Flow Plus) in the cervical area (Figure 4: A,)". This addresses a postoperative complication and its management, which is important for completeness.

Figure 4:

* Line 143: "Figure 4: Post operative follow up" is a clear and concise caption.

POST-OPERATIVE FOLLOW-UP-

* Line 147: "At the one-year follow-up, clinical examination of tooth #11 indicated healthy periodontal status, with probing depths within the normal range of 1-3 mm, CBCT evaluation [Figure 5] demonstrated complete periapical healing of the defect wrt 12 and effective sealing of the resorptive defect wrt 11". The one-year follow-up demonstrating successful outcomes is a major strength of this case report. Probing depths are good objective measures.

* Line 149: "with no observable changes in the surrounding osseous tissue" further emphasizes the successful healing.

Figure 5:

* Lines 150-153: "Figure 5: A) clinical image showing good esthetic effect, B) CBCT frontal, sagittal and axial views of treated tooth demonstrate periapical healing wrt 12 and sealing of resorptive defect wrt 11". The caption clearly describes the images showing the positive outcome.

DISCUSSION:

* Lines 164-166: "A combination restorative and periodontal strategy is frequently necessary for the successful treatment of External cervical root resorption. However, because of the size, location, and restorability of the damaged tooth, among other criteria, treating root resorption is not always possible. In the management of ECR, thorough case selection is essential to achieving consistent and long-term success". This is a strong opening to the discussion, setting the context for successful ECR management.

* Line 167: "When treating external cervical resorption, the main objective is remove all of the resorptive tissue and halt the resorptive process". This correctly states the primary goal of treatment.

* Line 168: "Traumatic injury is the case report's etiological factor". This statement seems definitive, but the case report earlier mentioned "history of previous endodontic wrt both 11 and 12". While trauma can lead to ECR, the text should be consistent in emphasizing the primary etiology or acknowledge that previous endodontic treatment might also be a contributing factor or a separate issue. Re-evaluating the certainty of "the" etiological factor.

* Line 168: "To prevent further infection, the resorptive defect the cyst was managed in a single session". This justification for single-session management is logical.

* Line 169: "Chemical agents like trichloroacetic acid (TCA) was used in this case study to remove the granulation tissue". Correctly describes the use of TCA.

* Line 170: "As an alternative, 5% sodium hypochlorite (NaOCl) can also be used for debridement (Prime Dental Products Pvt. Ltd., Mumbai, India)". Good to mention alternatives.

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* Line 171: "To enhance mineral trioxide aggregate (MTA) adaptation, a final washing with sterile water was carried out at the resorption site". This is a good detail regarding MTA application.

* Lines 171-173: "Resorptive faults have been managed with a variety of restorative materials, In the past, amalgam, GIC, super EBA, and IRM were utilized to fix the restoration; however, these materials are linked to the development of periodontal defects [9.10]". This provides a historical context and justifies the choice of MTA by highlighting the drawbacks of older materials.

* Lines 174-178: The discussion of amalgam and Super-EBA is relevant for contrasting them with MTA.

* Lines 179-182: The introduction and properties of MTA are well-described.

* Lines 183-185: "According to tissue culture studies, MTA promotes cementogenesis and allows cementoblasts to adhere and proliferate. MTA is known to accelerate cell proliferation and release large amounts of calcium, although it has no harmful effects on cells". This explanation of MTA's biocompatibility and regenerative potential is excellent.

* Lines 186-188: "Introduced in 2010, biodentine is a calcium silicate-based substance used for root-end fillings, resorption repair, and perforation repair. [15] MTA demonstrated the best seal and the lowest dye absorbance in an in vitro investigation comparing the sealing capabilities of calcium phosphate cement, biodentine, and MTA. Compared to MTA, biodentine displayed a somewhat lower seal". This comparison with Biodentine is relevant as it is a contemporary material.

* Lines 189-196: The discussion of bacterial leakage comparing MTA with other materials is very strong and provides robust evidence for MTA's superior sealing ability.

* Lines 197-199: "When MTA was applied as a root-end filler, the surrounding tissues appeared to mend. The existence of connective tissue following the first postoperative week was the most distinctive tissue reaction of MTA". This further supports the regenerative properties of MTA.

* Lines 200-202: "Radicular cysts can be treated using a variety of techniques, such as enucleation, marsupialization, or decompression in the case of bigger lesions, or with a traditional, nonsurgical RCT in situations when the lesion is small and restricted. The surgical enucleation of a chronic radicular cyst associated with 12 is presented in this case report". This section effectively explains the various treatment modalities for radicular cysts and reiterates the chosen method for this case.

CONCLUSION:

* Lines 209-211: The conclusion effectively summarizes the case, highlighting the importance of early diagnosis, timely surgical intervention, thorough debridement, cyst enucleation, and the use of biocompatible materials like MTA for favorable outcomes.

* Lines 211-212: "This case highlights the importance of a multidisciplinary strategy and long-term follow-up to ensure successful treatment and prevent recurrence". This is a good final statement, emphasizing broader implications.

REFERENCES:

* General: The references are generally well-formatted. However, ensure consistent formatting (e.g., journal name abbreviations, volume/issue/page numbers).

* Cite Check: Double-check all citations against the referenced text. Ensure that every piece of information drawn from a source is accurately cited immediately after the relevant phrase or sentence. For example, some sentences are quite long and combine information; ideally, each distinct piece of information should have its citation. For instance, in lines 1-3, comes at the end of the first sentence. If the second sentence ("When accompanied by periapical pathology such as a radicular cyst, management becomes complex, particularly in previously endodontically treated teeth") is also from source 1, then should be repeated or moved. If it's from source 2, then should be immediately after that sentence. This is crucial for clear attribution.

* Consistency in Citation Style: The provided citation guidelines specify "" or "". The manuscript uses both "" and "[1]" or "[3,4]". Please ensure strict adherence to the "" format. For instance, Line 31: "[1.2]" should be "". Line 32: "[3]" should be "". Line 41: "[3,4]" should be "". And so on. This applies throughout the entire manuscript.

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Overall Impression:

This is a well-documented case report with clear images and a good explanation of the surgical procedure and follow-up. The discussion effectively justifies the treatment choices and highlights the advantages of MTA. Addressing the minor stylistic and citation consistency issues would significantly enhance the manuscript's quality and readiness for publication.